

WHAT IS CLAIMED IS:

1. A conveyor suitable for conveying objects along a transport direction, the conveyor comprising:

a plurality of connected links, each link having a length extending across the direction of transport and a width extending along the direction of transport, each link having a conveying surface and at least one gripping member moveable along at least a portion of length of the link from a first position to a second position, the gripping member when in the first position being disposed below the conveying surface of the link, and the gripping member when in the second position being disposed above the conveying surface of the link for contacting one of the objects to hold the object during transport.

2. The conveyor of claim 1, wherein each gripping member pivots relative to its respective link when moving from the first position to the second position.

3. The conveyor of claim 1, wherein each gripping member slides relative to its respective link when moving from the first position to the second position.

4. The conveyor of claim 1, wherein each gripping member pivots and slides relative to its respective link when moving from the first position to the second position.

5. The conveyor of claim 1, wherein each gripping member pivots about an axis substantially parallel to the direction of transport when moving from the first position to the second position.

6. The conveyor of claim 5, wherein each gripping member slides along a portion of the length of its respective link when moving from the first position to the second position.

7. The conveyor of claim 1, wherein each gripping member pivots about an axis substantially perpendicular to the direction of transport when moving from the first position to the second position.
8. The conveyor of claim 7, wherein each gripping member slides along a portion of the length of its respective link when moving from the first position to the second position.
9. The conveyor of claim 1, wherein each link includes a spring member, and each gripping member is urged toward the second position by the spring member.
10. The conveyor of claim 1, wherein the conveyor includes a first cam member for urging the gripping members toward the second position.
11. The conveyor of claim 1, wherein the conveyor includes a second cam member for urging the gripping members toward the first position.
12. The conveyor of claim 1, wherein each link includes at least one cam follower for contacting at least one cam member to move the gripping member.
13. The conveyor of claim 1, wherein each link includes a body and a slider slidable along the body, at least one cam follower being mounted on the slider.
14. The conveyor of claim 13, wherein the slider is integral with the gripping member.
15. The conveyor of claim 13, wherein the slider is moveable relative to the gripping member.
16. The conveyor of claim 1, wherein the gripping members each include a pin.
17. The conveyor of claim 1, wherein the gripping members each include a plate.

18. The conveyor of claim 1, wherein the links are configured so as to be spaced along the direction of transport so that at least two gripping members on adjacent links may contact an object.

19. The conveyor of claim 1, wherein each link includes two of the gripping members, oppositely disposed so as to be able to grip an object therebetween.

20. The conveyor of claim 19, wherein the two gripping members on each link are configured to move toward each other when moving from the first position to the second position.

21. The conveyor of claim 1, wherein the second position is self-adjustable depending on the size of the object.

22. The conveyor of claim 1, wherein each link includes at least one fence member, the gripping member gripping the object between the gripping member and the fence member when the gripping member is in the second position.

23. The conveyor of claim 22, wherein the fence member includes at least one of a pin, two pins, a fixed wall, or an adapter mounted on one or more pins.

24. The conveyor of claim 22, wherein the link includes a body and a slider, the slider being slidable back and forth relative to the fence member.

25. The conveyor of claim 22, wherein the location of the fence member is selectable between a plurality of predetermined positions.

26. The conveyor of claim 1, wherein each link includes a gear drive mechanism for moving the gripping member between the first and second positions.

27. The conveyor of claim 26, wherein the gear drive mechanism is a rack and pinion arrangement with a pinion portion being located on the gripping member and a rack portion being located on a slider slidable relative to a body of the link.

28. The conveyor of claim 27, wherein the gripping member includes two gripping arms movable relative to the conveying surface.

29. The conveyor of claim 1, the conveyor further including connection elements for connecting the links.

30. The conveyor of claim 29, wherein the connection elements include a knuckle conveyor having knuckle links attached to conveying platform members, the links being connected to the platform members.

31. The conveyor of claim 29, wherein the connection elements include a knuckle conveyor having knuckle links, the links being attached to the knuckle links.

32. The conveyor of claim 1, wherein the conveyor is configured so that the gripping members can grip and convey the objects in an inverted position with the objects located substantially below the links.

33. The conveyor of claim 1, wherein the conveyor is configured so that the gripping members can grip and convey the objects with the objects spaced from the conveying surface.

34. The conveyor of claim 1, wherein the conveyor is configured so that conveyed objects can be removed from the gripping members when the gripping members are in the second gripping position.

35. A link for a conveyor suitable for conveying objects along a transport direction, the link comprising:

a link body having a length extending across the direction of transport and a width extending along the direction of transport, the link body having a conveying surface and at least one gripping member moveable along at least a portion of length of the link body from a first position to a second position, the gripping member when in the first position being disposed below the conveying surface of the link body, and the gripping member when in the second position being disposed above the conveying surface of the body link for contacting one of the objects to hold the object during transport.

36. The link of claim 35, wherein the gripping member pivots relative to the link body when moving from the first position to the second position.

37. The link of claim 35, wherein the gripping member slides relative to the link body when moving from the first position to the second position.

38. The link of claim 35, wherein the gripping member pivots and slides relative to the link body when moving from the first position to the second position.

39. The link of claim 35, wherein the gripping member pivots about an axis substantially parallel to the direction of transport when moving from the first position to the second position.

40. The link of claim 39, wherein the gripping member slides along a portion of the length of the link body when moving from the first position to the second position.

41. The link of claim 35, wherein the gripping member pivots about an axis substantially perpendicular to the direction of transport when moving from the first position to the second position.

42. The link of claim 41, wherein the gripping member slides along a portion of the length of the link body when moving from the first position to the second position.

43. The link of claim 35, further including a spring member, and the gripping member is urged toward the second position by the spring member.

44. The link of claim 35, further including at least one cam follower for contacting at least one cam member to move the gripping member.

45. The link of claim 35, further including a slider slidable along the link body, at least one cam follower being mounted on the slider.

46. The link of claim 45, wherein the slider is integral with the gripping member.

47. The link of claim 45, wherein the slider is moveable relative to the gripping member.

48. The link of claim 35, wherein the gripping member includes a pin.

49. The link of claim 35, wherein the gripping members includes a plate.

50. The link of claim 35, wherein the link includes two of the gripping members, oppositely disposed so as to be able to grip an object therebetween.

51. The link of claim 50, wherein the two gripping members on each link are configured to move toward each other when moving from the first position to the second position.

52. The link of claim 35, wherein the second position is self-adjustable depending on the size of the object.

53. The link of claim 35, further including at least one fence member, the gripping member gripping the object between the gripping member and the fence member when the gripping member is in the second position.

54. The link of claim 53, wherein the fence member includes at least one of a pin, two pins, a fixed wall, or an adapter mounted on one or more pins.

55. The link of claim 53, wherein the location of the fence member is selectable between a plurality of predetermined positions.

56. The link of claim 35, further including a gear drive mechanism for moving the gripping member between the first and second positions.

57. The link of claim 56, wherein the gear drive mechanism is a rack and pinion arrangement with a pinion portion being located on the gripping member and a rack portion being located on a slider slidable relative to the link body.

58. The link of claim 57, wherein the gripping member includes two gripping arms movable relative to the conveying surface.

59. The link of claim 35, wherein the link is configured so that the gripping members can grip and convey the objects with the objects spaced from the conveying surface.

60. The link of claim 35, wherein the link is configured so that conveyed objects can be removed from the gripping members when the gripping members are in the second gripping position.

61. A link for a conveyor suitable for conveying objects along a transport direction, the link comprising:

a link body having a length extending across the direction of transport and a width extending along the direction of transport, the link body defining a conveying surface;

a slider slidable along the link body; and

at least one gripping member moveable along at least a portion of length of the link body from a first position to a second position, the gripping member movable relative to the slider, the gripping member when in the first position being disposed below the conveying surface of the link body, and the gripping member when in the second position being disposed above the

conveying surface of the body link for contacting one of the objects to hold the object during transport.

62. The link of claim 61, wherein the gripping member pivots relative to the link body when moving from the first position to the second position.

63. The link of claim 61, wherein the gripping member slides relative to the link body when moving from the first position to the second position.

64. The link of claim 61, wherein the gripping member pivots and slides relative to the link body when moving from the first position to the second position.

65. The link of claim 61, wherein the gripping member pivots about an axis substantially perpendicular to the direction of transport when moving from the first position to the second position.

66. The link of claim 65, wherein the gripping member slides along a portion of the length of the link body when moving from the first position to the second position.

67. The link of claim 61, further including a spring member, and the gripping member is urged toward the second position by the spring member.

68. The link of claim 61, further including at least one cam follower disposed on the slider for contacting at least one cam member to move the gripping member.

69. The link of claim 61, further including at least one fence member, the gripping member gripping the object between the gripping member and the fence member when the gripping member is in the second position.

70. The link of claim 61, further including a gear drive mechanism for moving the gripping member between the first and second positions.



71. The link of claim 70, wherein the gear drive mechanism is a rack and pinion arrangement with a pinion portion being located on the gripping member and a rack portion being located on a slider slidable relative to the link body.